

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANT: VANIK, Jiri

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TITLE: PERISTALTIC ROTATION PUMP WITH EXACT, ESPECIALLY MECHANICALLY
LINEAR DOSAGE

Amendment B: CLAIM AMENDMENTS

Claims 1 - 13 (canceled).

14. (Currently amended) A peristaltic rotation pump for providing mechanically linear dosing, said peristaltic rotation pump comprising:

an outer housing having a generally cylindrical interior surface forming a cylindrical hollow, said cylindrical hollow having a part of the interior surface forming a circular supporting occlusal path and a working path, said working path, said circular supporting occlusal path being a cylindrical surface, said working path being a generally cylindrical surface and being adjacent to said circular supporting occlusal path, said circular supporting occlusal path being elevated to align with said working path, said working path being comprised of a lead-in path, occlusal path, and releasing path;

a ~~tubular member~~ pump segment having an input end and an output end, both ends of said tubular member extending along said working path, said ~~tubular member~~ pump segment being positioned against supporting surfaces in said cylindrical hollow and outside said working path, said ~~tubular member~~ pump segment having a pump segment extended along said working path, said working path being transversally grooved at points of contact with said ~~tubular member~~ pump segment:

a plurality of pressure rollers rotatably mounted and engaged rollingly to said circular supporting occlusal path and said ~~tubular member pump segment~~;

a rotor having a plurality of hollow arms extending therefrom and a body, said rotor being rotatably mounted within said cylindrical hollow, said hollow arms having pressure blocks resiliently slidably mounted respectively therein, each pressure block having a hollow sliding mounting, each of said pressure rollers having an outside surface being freely slidingly mounted in a respective hollow sliding mounting, said circular supporting occlusal path being elevated toward a center of said rotor;

a stepper motor having a shaft extending therefrom, said rotor being affixed to said stepper motor.

15. (Currently amended) The peristaltic pump of Claim 14, said working path being generally circular with an approximate radius, said ~~tubular member pump segment~~ being tangent to said working path at a point when said ~~tubular member pump segment~~ diverges from said working path.

16. (Currently amended) The peristaltic pump of the Claim 14, said occlusal path and said releasing path being adjacent to said circular supporting occlusal path along an entire length of said circular supporting occlusal path, said pressure rollers being rollable along said circular supporting occlusal path, said circular supporting occlusal path being elevated above said occlusal path by a first distance less than twice a width of a wall of said ~~tubular member pump segment~~, said circular supporting occlusal path being elevated above said releasing path by a second distance less than an external diameter of said ~~tubular member pump segment~~, when said ~~tubular member pump segment~~ loses contact with said pressure rollers and becomes tangent to said releasing path, said second distance being equal to said external diameter of said ~~tubular member pump segment~~, each pressure

roller having a pressing force of zero on said ~~tubular member~~ pump segment, when said ~~tubular member~~ pump segment has a completely released position.

17. (Previously presented) The peristaltic pump of Claim 14, each of said pressure blocks being split by a longitudinal partition so as to define a first part and a second part, each of said first part and said second part having a spring therein, each of said pressure blocks being secured in each hollow arm by a pin being located in a longitudinal groove of a respective pressure block (5) and passing through a first groove in a respective hollow arm, said spring being leant inside a respective pressure block against a back wall of the hollow sliding mounting, a respective pressure roller being freely located in the hollow sliding mounting, said spring being pre-stressed at an opposite end against said body of said rotor and being located in a respective hollow arm, said body being fixed by a bayonet close to said shaft of said stepper motor and being shaped as a trilateral prism.

18. (Previously presented) The peristaltic pump of Claim 14, said rotor having two hollow arms, said body being a tetra lateral prism.

19. (Previously presented) The peristaltic pump of Claim 17, wherein said plurality of hollow arms is comprised of three arms, and wherein said body is a trilateral prism, said rotor having a hollow profile with a second socket, said trilateral prism having rounded corners fitted into said second socket, said rounded corners being positioned at a connection of adjacent hollow arms on said hollow profile, said body having a front fitted with a cylindrical protrusion, said cylindrical protrusion having a securing spring, said body having a back with a securing groove and an input groove, said shaft of said stepper motor having a securing pin placed thereon, said securing groove having a width at a point most distant from said cylindrical protrusion axis less than a diameter of said securing pin, said pin of the pressure block being fitted into a first groove symmetrically placed

at a front of said hollow profile of said rotor, said rotor having a control element with a second groove, said pin simultaneously locking into a respective second groove for handling the pressure blocks when said rotor moves along said working path, said pump segment being pressed by expansion into said working path, said control element being threadedly connected to said cylindrical protrusion.

20. (Previously presented) The peristaltic pump of Claim 14, wherein said occlusal path has a minimum length corresponding to amount of rotation between adjacent hollow arms of said rotor, determined by a formula of 360° divided by number of hollow arms symmetrically arranged around said rotor.

21. (Currently amended) The peristaltic pump of Claim 14, said pressure block having guiding grooves formed at an end thereof, engaging said ~~tubular member~~ pump segment on the transversally grooved working path.

22. (Previously presented) The peristaltic pump of Claim 14, each of said pressure rollers having a cylindrical shape.

23. (Previously presented) The peristaltic pump of Claim 20, said hollow sliding mounting having wiper blades formed at said end of said pressure block adjacent a pressure roller, said hollow sliding mounting also having sockets formed adjacent said wiper blades.

24. (Currently amended) The peristaltic pump of Claim 14, each pressure block having a length of stroke ranging from 1.1 to 2.0 multiples of an external diameter of said ~~tubular member~~ pump segment.

25. (Previously presented) The peristaltic pump of Claim 14, said pressure roller being an electrical conductor, said outer housing having a first speed contactor and second position contact

positioned on said circular supporting occlusal path where said lead-in path changes into said occlusal path, said occlusal path having an edge with a common contact positioned opposite said first speed contactor and said second position contact, each pressure roller being movable so as to initiate contact of said first speed contactor and said second position contact with said common contact.

26. (Previously presented) The peristaltic pump of Claim 14, said pressure rollers being magnetized.